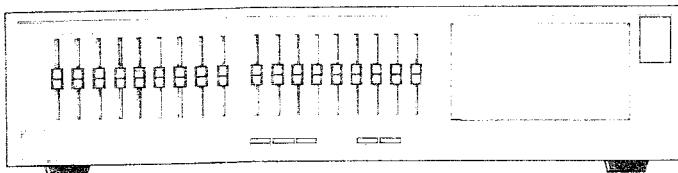


# SERVICE MANUAL



## EQ470R Graphic Equalizer

**S**Sherwood

### *Specification*

#### **Equalizer Section**

##### **Equalizer Range**

(Individual channel  
adjust) ..... ± 12dB  
63Hz, 125Hz, 250Hz, 500Hz,  
1KHz, 2KHz, 4KHz, 8KHz, 16KHz

##### **Total Harmonic Distortion**

20Hz—20KHz, All Control;  
Flat, Output: 1V ..... 0.025%  
1KHz, All Control;  
Max., Output: 3V ..... 0.06%  
1KHz, All Control;  
Flat, Output: 2V ..... 0.005%  
1KHz, All Control;  
Min., Output: 0.2V ..... 0.1%

##### **Insertion Loss** ..... 0dB(Control;Flat)

##### **Max. Output Voltage**

(1KHz, THD: 0.5%,  
RL47KΩ) ..... 10V

##### **Frequency Response** ..... 10Hz—50KHz + 0—3dB

##### **Signal to Noise Ratio**

(IHF, A Network, short  
circuited, 1V, Output) ..... 95dB

##### **Input Impedance** ..... 50KΩ

##### **Output Impedance** ..... 600Ω

##### **Miscellaneous**

**Power Consumption** ..... 12W  
**Dimensions** ..... 440(W) × 95(H) × 200(D)mm

**Weight(without package)** ..... 3.3kg ( )

##### **Furnished Parts**

##### **Connection Cord with Pin**

**Plugs** ..... 2

**Operating Instructions** ..... 1

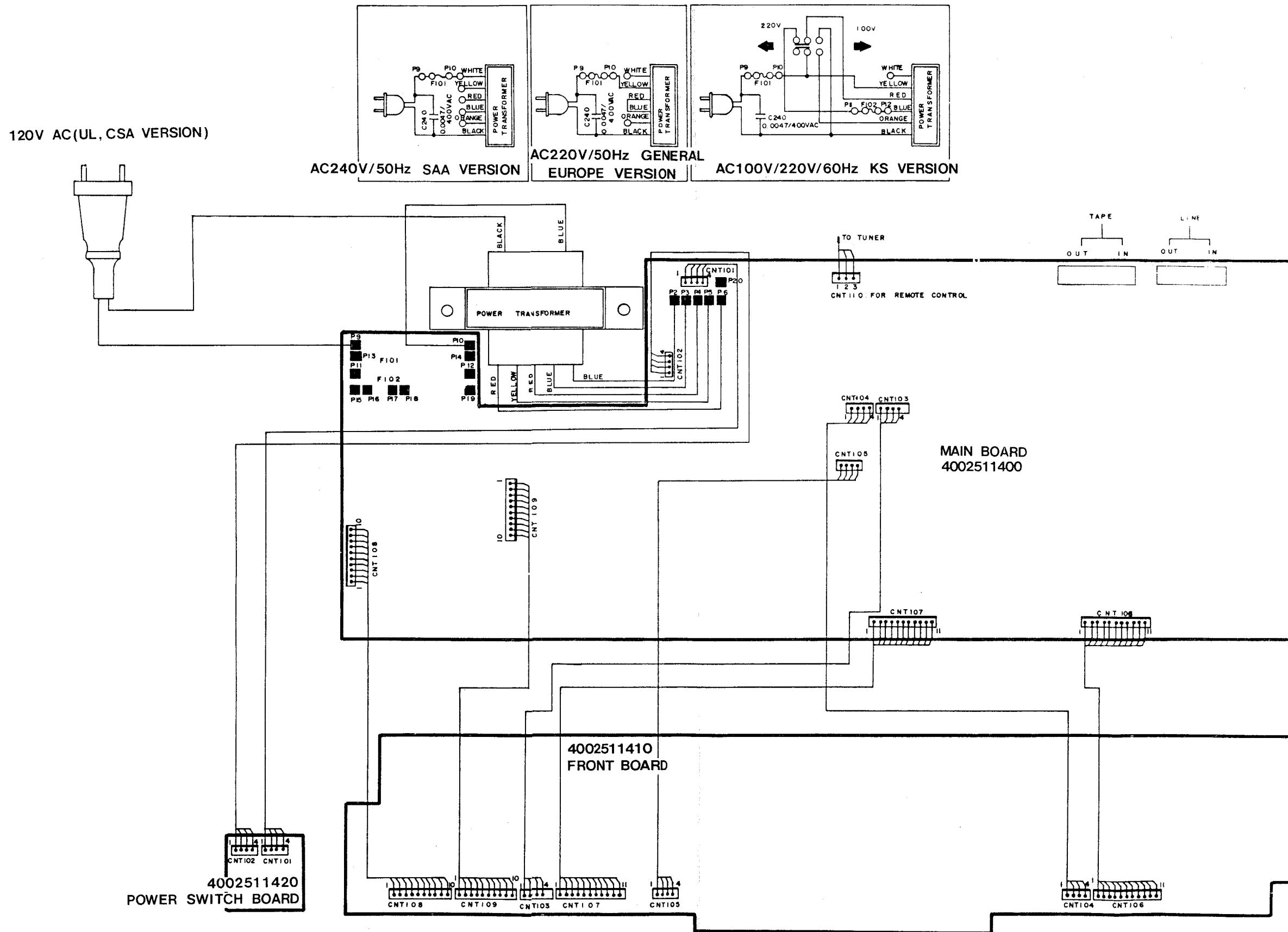
##### **NOTE:**

Specification and the design subject to possible modification without notice due to improvements.

## **Contents**

Specification .....	1
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# Point to Point Wiring Diagram

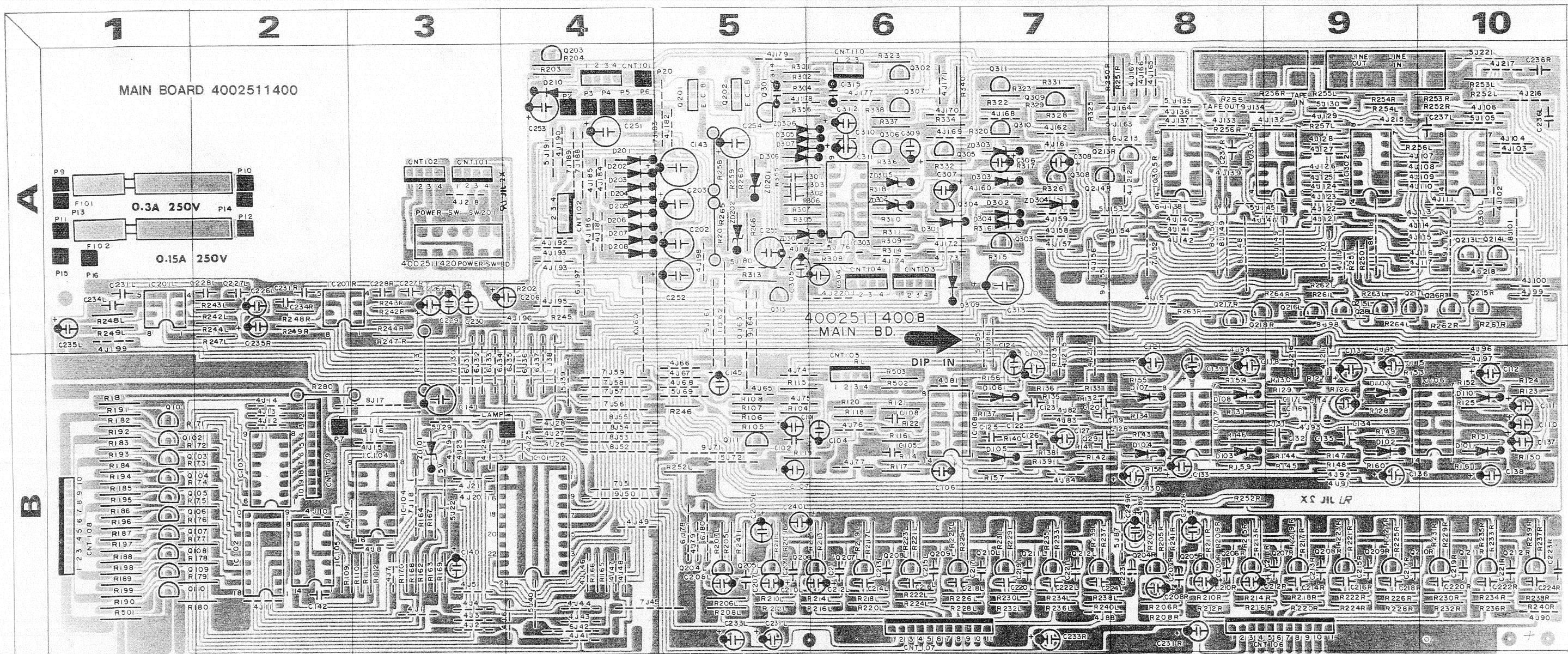


# Parts List & Top View of P.C Boards

## MAIN BOARD 4002511400

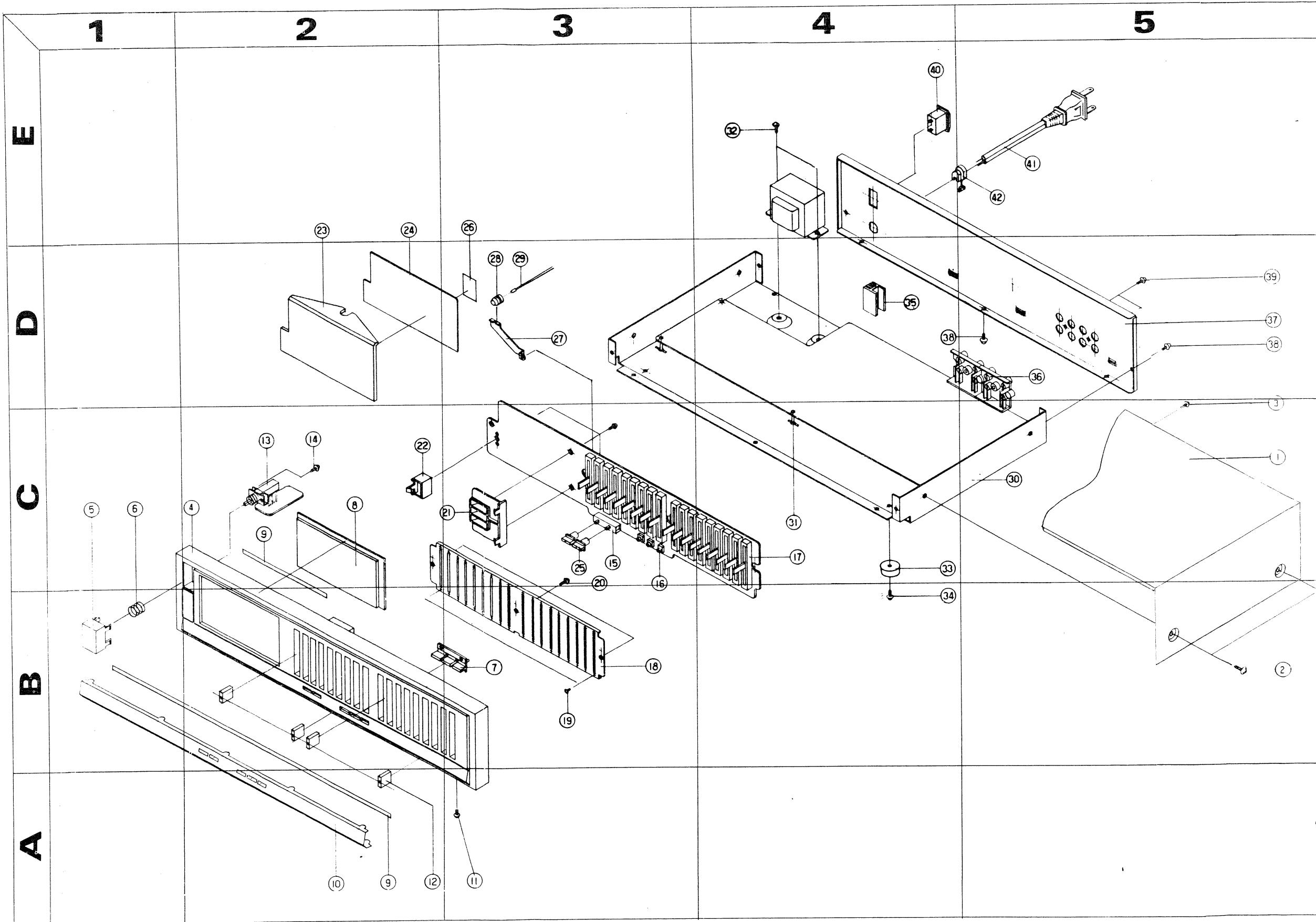
Ref.No.	Parts No.	Description	Position
<b>●IC</b>			
IC101	2138009111	MC14067 BCP.	4B
IC102	2168024102	LM3915	2B
IC103	2108009112	74145	2B
IC104	2138009110	MC14029	3B
IC105	2138009109	MC14016	2B
IC106	2168000113	LM324	10B
IC107			8B
IC108			6.7B
IC201L/R	2138017108	LC4966	10A/9A
IC302L/R			9A/8A
IC303	2168007123	TC9130P	6A
IC201L/R	21682020103	NJM4560D	1A/2.3A
<b>●TRANSISTOR</b>			
Q101, Q102	2208206105	KTA1015	1B
Q103, Q104			
Q105, Q106			
Q107, Q108			
Q109, Q110			
Q201	2028406113	D880	5A
Q202	2028106111	B834	5A
Q203	2208206105	KTA1015	4A
Q204L/R	2208606109	KTC1815Y	5B/8B
Q205L/R			5B/8B
Q206L/R			6B/8B
Q207L/R			6B/9B
Q208L/R			6B/9B
Q209L/R			7B/9B
Q210L/R			7B/10B
Q211L/R			7B/10B
Q212L/R			7.8B/10B
Q213L/R			10A/8A
Q214L/R			10A/8A
Q215L/R			9A/10A
Q216L/R			9A/10A
Q217L/R			10A/8A
Q218L/R			9A/9A
Q301			5A
Q302			6A
Q303			7A
Q304, Q305			6.7A
Q306, Q307			6A
Q308, Q309			7A
Q310, Q311			7A
Q313			5A
<b>●RESISTOR</b>			
R103	3069101270	Carbon Film 100 ohm $\frac{1}{4}$ W	7A,B
R104	3069102270	Carbon Film 1K ohm $\frac{1}{4}$ W	5.6B
R105	3069104270	Carbon Film 100K ohm $\frac{1}{4}$ W	5B
R106	3069101270	Carbon Film 100K ohm $\frac{1}{4}$ W	5B
R107	3069103270	Carbon Film 10K ohm $\frac{1}{4}$ W	5B
R108	3069102270	Carbon Film 1K ohm $\frac{1}{4}$ W	5B
R109	3069394270	Carbon Film 390K ohm $\frac{1}{4}$ W	3B
R110	3069134270	Carbon Film 130K ohm $\frac{1}{4}$ W	3B
R111, R112	3069203270	Carbon Film 20K ohm $\frac{1}{4}$ W	3B
R113	3039100472	Metal Oxide 10(1W)	3A,B
R114, R115	3069102270	Carbon Film 1K ohm $\frac{1}{4}$ W	5.6B
R116	3069104270	Carbon Film 100K ohm $\frac{1}{4}$	6B
R117	3069302270	Carbon Film 3K ohm $\frac{1}{4}$ W	6B
R118	3069223270	Carbon Film 22K ohm $\frac{1}{4}$ W	6B
R119	3069302270	Carbon Film 3K ohm $\frac{1}{4}$ W	5.6B
R120	3069223270	Carbon Film 22K ohm $\frac{1}{4}$ W	6B
R121	3069473270	Carbon Film 47K ohm $\frac{1}{4}$ W	6B
R122	3069102270	Carbon Film 1K ohm $\frac{1}{4}$ W	6B
R123	3069203270	Carbon Film 20K ohm $\frac{1}{4}$ W	10B
R124	3069911270	Carbon Film 910K ohm $\frac{1}{4}$ W	10B
R125	3069683270	Carbon Film 68K ohm $\frac{1}{4}$ W	10B
R126	3069203270	Carbon Film 20K ohm $\frac{1}{4}$ W	9B
R127	3069132270	Carbon Film 1.3K ohm $\frac{1}{4}$ W	9B
R128	3069623270	Carbon Film 62K ohm $\frac{1}{4}$ W	9B
R129	3069203270	Carbon Film 20K ohm $\frac{1}{4}$ W	9B
R130	3069122270	Carbon Film 1.2K ohm $\frac{1}{4}$ W	9B
R131	3069513270	Carbon Film 51K ohm $\frac{1}{4}$ W	8B
R132	3069183270	Carbon Film 18K ohm $\frac{1}{4}$ W	7.8B
R133	3069911270	Carbon Film 910K ohm $\frac{1}{4}$ W	7.8B
R134	3069473270	Carbon Film 47K ohm $\frac{1}{4}$ W	8B
R135	3069183270	Carbon Film 18K ohm $\frac{1}{4}$ W	7B

Ref.No.	Parts No.	Description	Position
<b>●IC</b>			
R136	3069102270	Carbon Film 1K ohm $\frac{1}{4}$ W	7B
R137	3069513270	Carbon Film 51K ohm $\frac{1}{4}$ W	7B
R138	3069203270	Carbon Film 20K ohm $\frac{1}{4}$ W	7B
R139	3069112270	Carbon Film 1.1K ohm $\frac{1}{4}$ W	7B
R140	3069563270	Carbon Film 56K ohm $\frac{1}{4}$ W	7B
R141	3069243270	Carbon Film 24K ohm $\frac{1}{4}$ W	7.8B
R142	3069132270	Carbon Film 1.3K ohm $\frac{1}{4}$ W	7.8B
R143	3069623270	Carbon Film 62K ohm $\frac{1}{4}$ W	8B
R144	3069203270	Carbon Film 20K ohm $\frac{1}{4}$ W	9B
R145	3069122270	Carbon Film 1.2K ohm $\frac{1}{4}$ W	9B
R146	3069683270	Carbon Film 68K ohm $\frac{1}{4}$ W	8B
R147	3069273270	Carbon Film 27K ohm $\frac{1}{4}$ W	9B
R148	3069132270	Carbon Film 1.3K ohm $\frac{1}{4}$ W	9B
R149	3069513270	Carbon Film 51K ohm $\frac{1}{4}$ W	9B
R150	3069104270	Carbon Film 100K ohm $\frac{1}{4}$ W	10B
R151	3069563270	Carbon Film 56K ohm $\frac{1}{4}$ W	10B
R152	3069222270	Carbon Film 2.2K ohm $\frac{1}{4}$ W	10B
R153			9B
R154, R155			8B
R156, R157			7B
R158, R159			8B
R160			9B
R161			10B
R162	3069471270	Carbon Film 470K ohm $\frac{1}{4}$ W	3B
R163	3069103270	Carbon Film 10K ohm $\frac{1}{4}$ W	3B
R164	3069331270	Carbon Film 330K ohm $\frac{1}{4}$ W	3B
R165	3069473270	Carbon Film 47K ohm $\frac{1}{4}$ W	4B
R166	3069224270	Carbon Film 220K ohm $\frac{1}{4}$ W	4B
R167	3069560270	Carbon Film 56K ohm $\frac{1}{4}$ W	3B
R168	3069161270	Carbon Film 160K ohm $\frac{1}{4}$ W	3B
R169	3069751270	Carbon Film 750K ohm $\frac{1}{4}$ W	3B
R170	3069331270	Carbon Film 330K ohm $\frac{1}{4}$ W	3B
R171, R172	3069102270	Carbon Film 1K ohm $\frac{1}{4}$ W	1.2B
R173, R174			
R175, R176			
R177, R178			
R179, R180			
R181, R182			
R183, R184			
R185, R186			
R187, R188			
R189, R190			
R191, R192	3069561270	Carbon Film 560K ohm $\frac{1}{4}$ W	1B
R193, R194			
R195, R196			
R197, R198			
R199, R501			
R502, R503	3069122270	Carbon Film 1.2K ohm $\frac{1}{4}$ W	6B
R201	3039100472	Metal Oxide 10 ohm $\frac{1}{4}$ W	5A
R202	3069100270	Carbon Film 10 ohm $\frac{1}{4}$ W	4A
R203	3069223270	Carbon Film 22K ohm $\frac{1}{4}$ W	4A
R204	3069103270	Carbon Film 10K ohm $\frac{1}{4}$ W	4A
R205L/R	3069104270	Carbon Film 100K ohm $\frac{1}{4}$ W	5B/8B
R206L/R	3069122270	Carbon Film 1.2K ohm $\frac{1}{4}$ W	5B/8B
R207L/R	3069391270	Carbon Film 390 ohm $\frac{1}{4}$ W	5B/8B
R208L/R	3069153270	Carbon Film 15K ohm $\frac{1}{4}$ W	5B/8B
R209L/R	3069104270	Carbon Film 100K ohm $\frac{1}{4}$ W	5B/8B
R210L/R	3069102270	Carbon Film 1K ohm $\frac{1}{4}$ W	5B/8B
R211L/R	3069391270	Carbon Film 390 ohm $\frac{1}{4}$ W	5B/8B
R212L/R	3069153270	Carbon Film 15K ohm $\frac{1}{4}$ W	5B/8B
R213L/R	3069104270	Carbon Film 100K ohm $\frac{1}{4}$ W	6B/9B
R214L/R	3069102270	Carbon Film 1K ohm $\frac{1}{4}$ W	6B/9B
R215L/R	3069391270	Carbon Film 390 ohm $\frac{1}{4}$ W	6B/8B
R216L/R	3069153270	Carbon Film 15K ohm $\frac{1}{4}$ W	6B/8B
R217L/R	3069104270	Carbon Film 100K ohm $\frac{1}{4}$ W	6B/9B
R218L/R	3069122270	Carbon Film 1.2K ohm $\frac{1}{4}$ W	6B/9B
R219L/R	3069391270	Carbon Film 390 ohm $\frac{1}{4}$ W	6B/9B
R220			



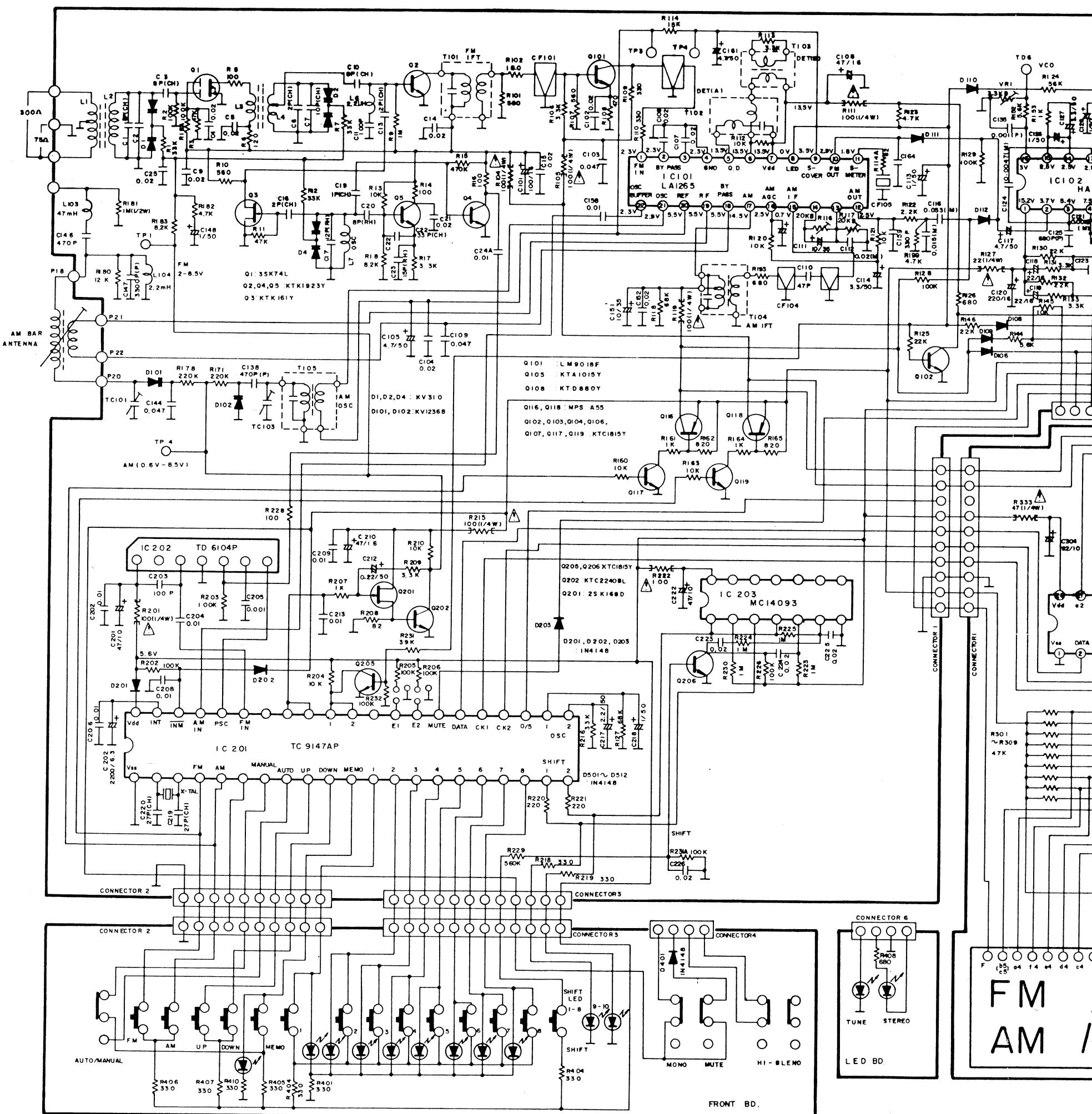
# Parts List & Exploded View of Cabinet & Chassis

NO.	PARTS NO.	DESCRIPTION	Q'TY	POSITION
1	046122011711	COVER TOP	1	C6
2	8159440083	SCREW WPS4 · 8(B)	4	B6
3	8119430053	SCREW PS3 · 5(B)	1	D6
4	048501005711	PANNEL FRONT	1	C2
5	048545026611	BUTTON PUSH(POWER)	1	C1
6	6555601020	SPRING COIL	1	C1
7	8545033810	BUTTON TACT	1	B3
8	8555013010	WINDOW L.E.D	1	C2
9	1858400103	TAPE DOUBLE W-5	1	C2, A2
10	048633001111	PLATE NAME	1	A2
11	8119430053	SCREW PS3 · 5(B)	3	A3
12	048545032011	KNOB SLIDE	18	A2
13	4628043610	S/W PUSH(POWER)	1	C2
14	8119130081	SCREW #1PT 3 · 8(Y)	2	C2
15	4628040410	S/W PUSH (2KEY)	1	C3
16	4658001120	S/W TACT	3	C3
17	3238406410	SLVR 4518 PB	18	C4
18	6503008310	B.K TE Q	1	B3
19	3019120033	SCREW PM2 · 3(B)	20	B3
20	8119130081	SCREW #1RT 3 · 8(Y)	6	C3
21	8523007710	DECORATION L.E.D	1	C3
22	6515008810	HOLDER REFLECTOR	1	C2
23	048555012811	REFLECTOR L.E.D	1	E2
24	048535010011	INLAY DECORATIO	1	E2
25	8545033910	BUTTON PUSH	2	C3
26	8535011110	DIFFUSER	1	E3
27	6515008910	HOLDER LAMP	1	A3
28	6715010410	LAMP HOLDER	1	D3
29	2528201420	LAMP	1	D3
30	6122612410	CHASSIS MAIN	1	C5
31	6528300310	FASTNER	4	C4
32	8159440081	SCREW WPS 4 · 8(Y)	2	E4
33	6335000310	FOOT	4	C4
34	8119430081	SCREW WPS 3 · 8(Y)	4	B4
35	7505201920	HEAT SINM REG TR	1	D4
36	4438100410	JACK R.C.A	1	D5
37	046102018112	CHASSIS BACK	1	D6
38	8119430053	SCREW PS 3 · 5(B)	5	D5, D6
39	8119130083	SCREW #1PT 3 · 8(B)	2	D6
40	4308000220	CORD AC POWER	1	E5
41	6518000111	STOPPER CORD	1	E5

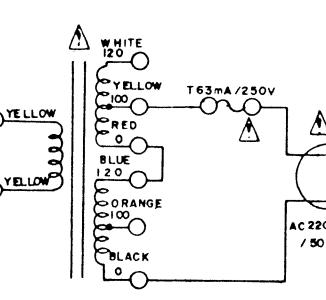


**A****B****C****D**

# Schematic Diagram TD140

**A****B****C****D**

KTA1015Y  
 LM9018F  
 KTD 880Y  
 3SK74L  
 KTK161GR  
 KTK168D  
 KV1310A-3  
 KV1235Z



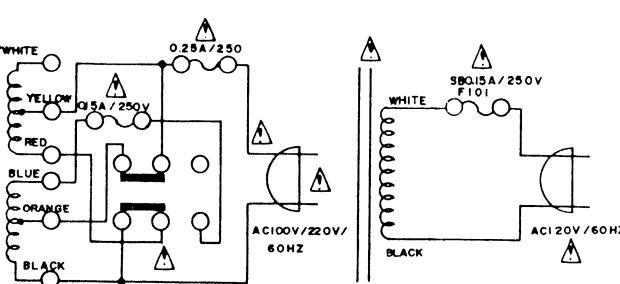
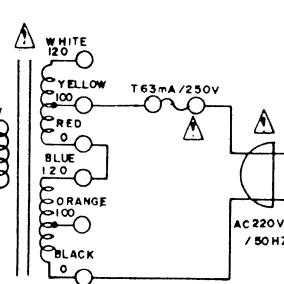
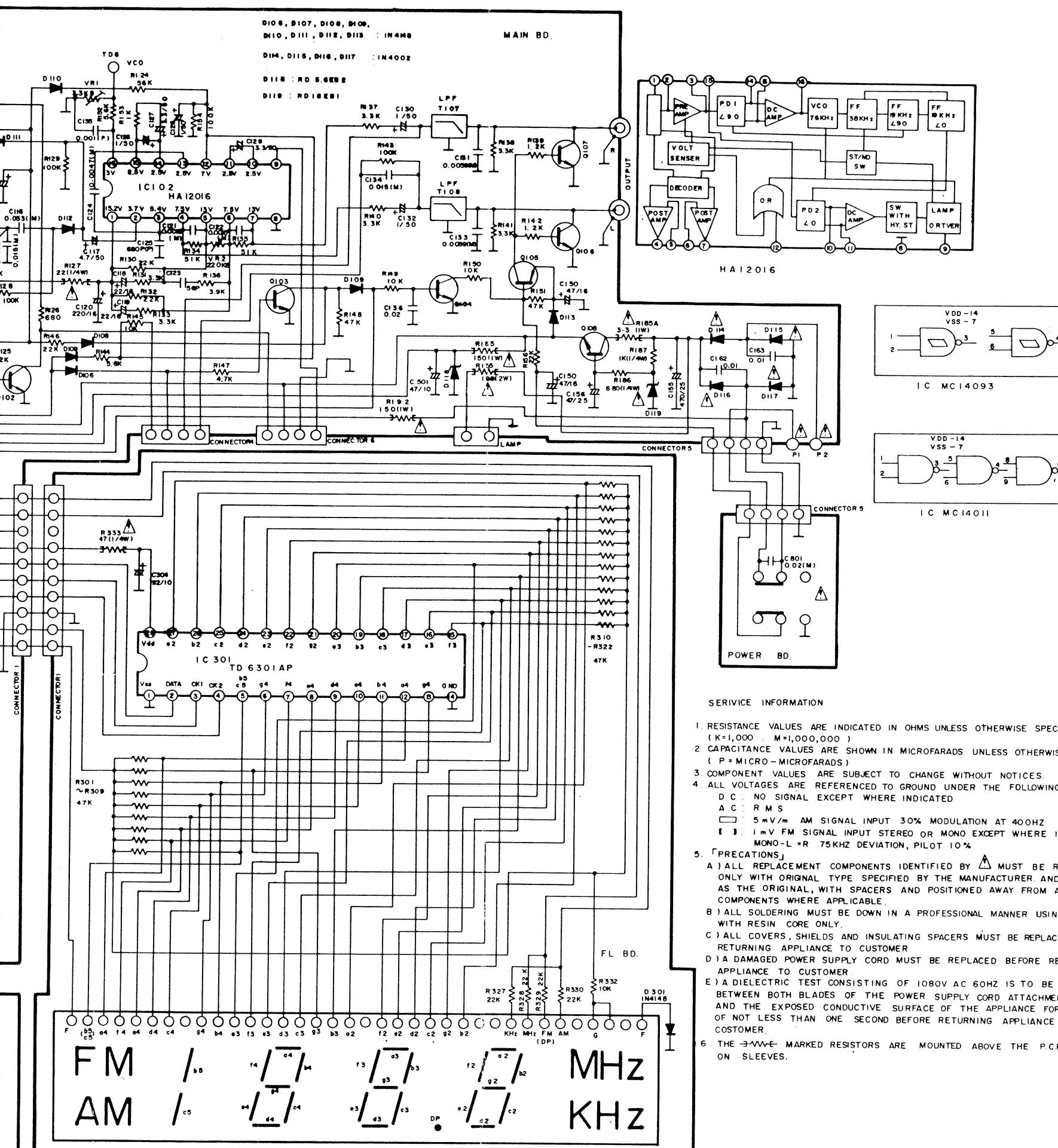
D

E

F

G

# Schematic Diagram TD140



F

G

1  
2  
3  
4  
5

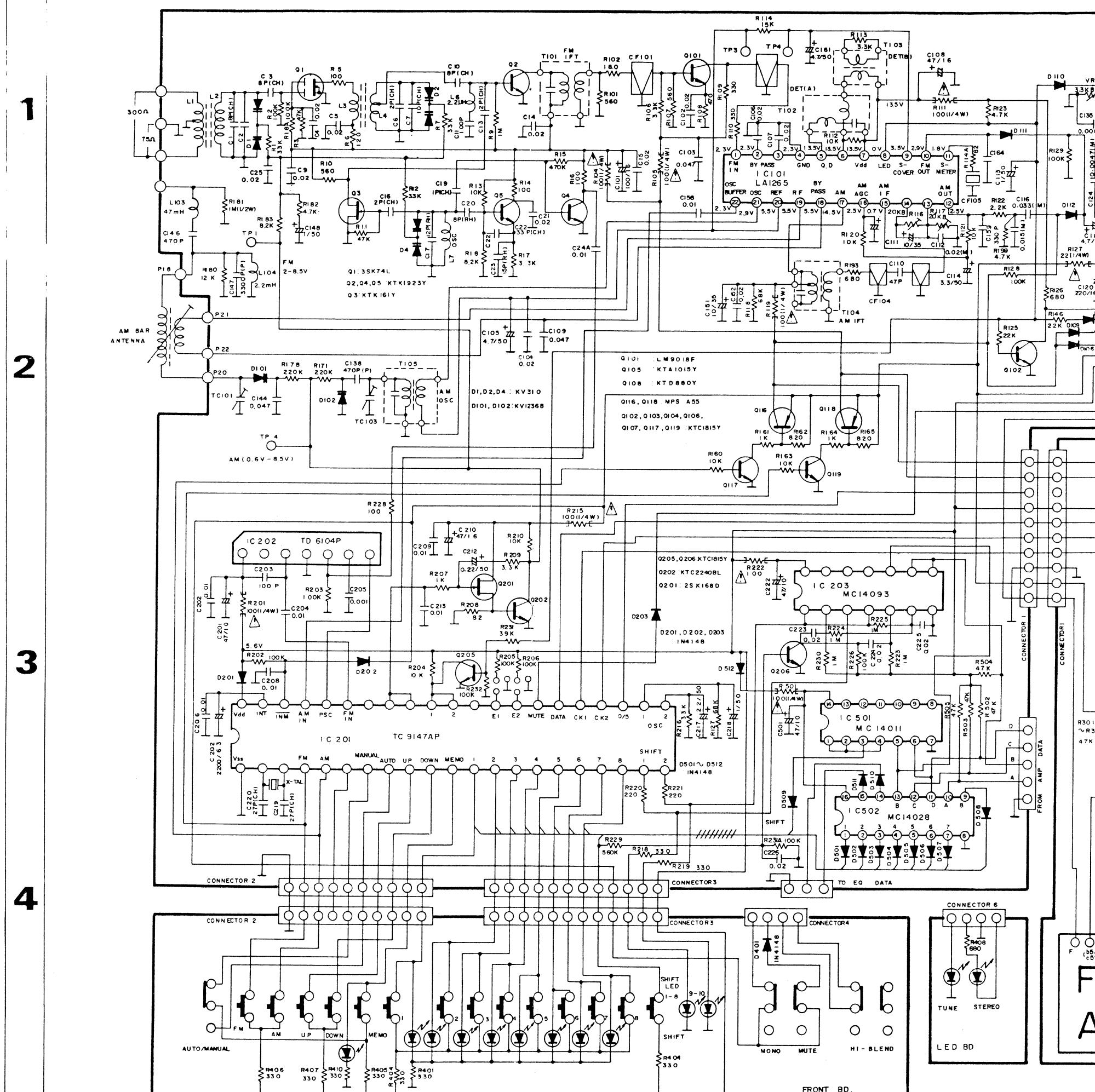
A

B

C

## Schematic

TD14



The diagram displays four integrated circuit symbols arranged horizontally. Each symbol consists of a hexagonal outline with internal connection lines. The first three symbols have three pins labeled B, C, and E at the bottom. The fourth symbol has four pins labeled D, G<sub>1</sub>, and S at the top.

**KTA1015Y**      **LM9018F**      **KTD 880Y**      **KTC2240BL**

KTA1015Y  
KTC1815Y  
KTC2240BL

C B E

D 880Y

D S G

The diagram illustrates two different connector types. The left side shows a top-down view of a rectangular connector with four circular ports arranged in a cross pattern. Below it is a side-view representation showing a central vertical pin flanked by two horizontal pins. The right side shows a similar rectangular connector with four ports, but its side-view representation shows only one central vertical pin.

5

A

B

C

D

D

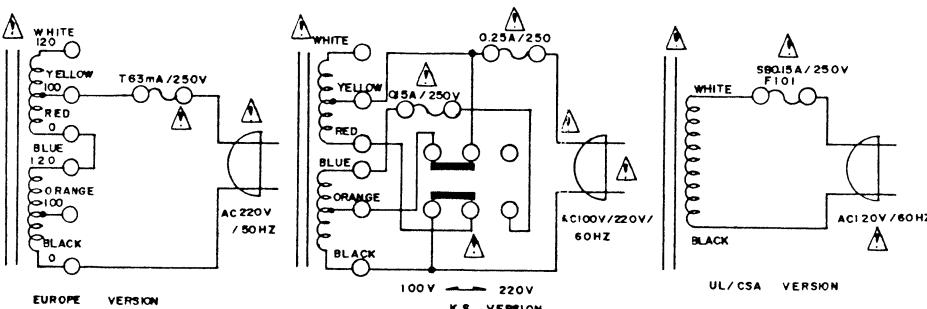
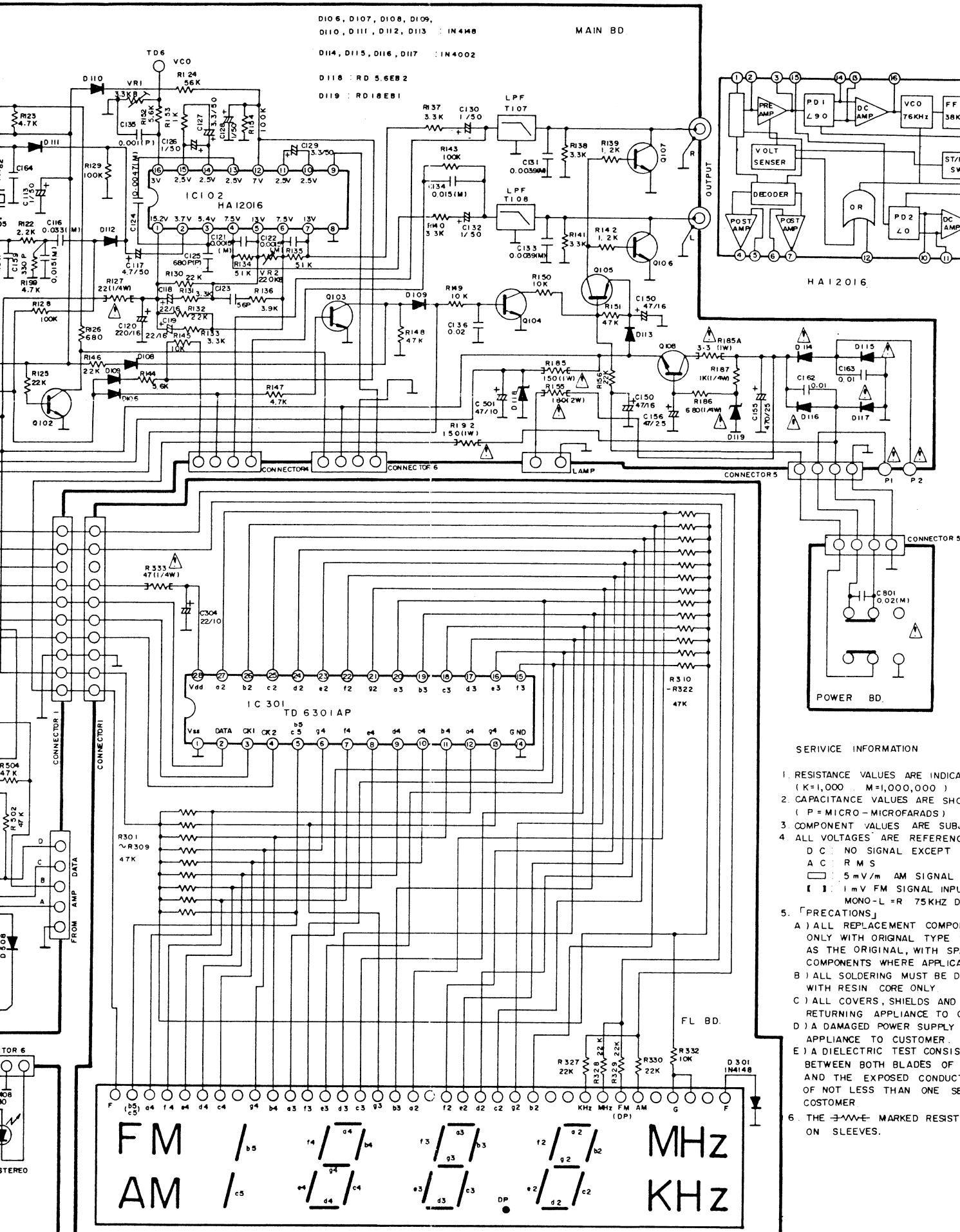
三

F

G

# *Hematic Diagram*

## **TD140R**



D

E

5

6

# Block Diagram

